4. CONSTRUCTION

4.1 General

Following approval of the final EDR, Lehigh will prepare plans and specifications in accordance with CD and WAC requirements. The plans and specifications will be used to obtain bids from contractors. During the time leading up to implementation of the work described in the plans and specifications, the contractor may provide design recommendations to facilitate implementation. If these recommendations are accepted by the Site Engineer, the plans and specifications will be modified.

Items that may affect construction of the Groundwater Remedy are summarized in Section 3.2.3 and include weather constraints, and storage and workspace constraints. A summary of the anticipated construction sequence and contractor management procedures are provided in the following sections.

4.2 Anticipated Construction Sequence

4.2.1 Introduction

The total project schedule is contained within the CD and is based on the date the CD took effect, 9 March 2006. Based on the deliverables due to Ecology prior to construction, and their respective review times, the tasks will be divided into two phases: 2006 construction activities and 2007 construction activities. The anticipated construction sequence (2006 and 2007 construction activities) is presented graphically in Figures 4-1 through 4-7.

The construction activities planned for 2006 will help to ready the Site for the construction activities planned for 2007. Lehigh proposes to construct the gravity drain and the foundation for the building expansion in 2006. Lehigh also proposes to evaluate the status of the wet and dry utilities that service the existing building and upgrade them in 2006, if necessary. Based on the proposed alignment of the barrier

walls and French drain segments, Lehigh may drill exploratory borings along the alignment in 2006 to evaluate subsurface conditions.

The Construction will occur in 2007, commencing in the spring after temperatures rises, the snow melts, and relatively dry conditions are reached. Details of the anticipated project schedule are presented in the Section 7, Schedule and Other Considerations.

The conceptual construction sequence for major components of the Groundwater Remedy is described below. This sequence could change based on final design, contractor input, and other construction and time restrictions. Compliance monitoring will be performed throughout the Groundwater Remedy construction process and its long term operation.

4.2.2 2006 Construction Activities

The following is a summary of the construction activities planned for 2006:

Task 1: Site Preparation

- Install Storm Water / Surface Water Control Features
- Remove Vegetation In The Building Expansion Area
- Grade the Foundation Area In Preparation of Concrete Pour

Task 2: Exploratory Drilling

- Layout Proposed Alignment and Drill Borings Along Alignment In Areas Where Additional Data May Be Needed

Task 3: Gravity Drain

- Use Directional Drilling Techniques to Drill Horizontal Drain Under State Route 31 and Along the Southern Edge of the Closed CKD Pile
- Construct gravity drain

- Close the gravity drain valve until the Groundwater Remedy is constructed

Task 4: Building Expansion - Foundation

- Pour Concrete for the Foundation

Task 5: Utility Evaluation

- Evaluate Electrical, Water, and Sewer Connections
- Upgrade Utilities If Necessary

Task 6: Site Clean-Up

- Remove Equipment and Debris
- Winterize the New Foundation and Area of Construction

4.2.3 2007 Construction Activities

The following is a summary of 2007 construction tasks:

Task 1: Site Preparation

- Install Storm Water / Surface Water Control Features
- Remove Vegetation in Construction Area
- Grade Construction Area in Preparation for Construction
- Initiate Compliance Monitoring

Task 2: Building Expansion - Structure and Carbon Dioxide Tank

- Complete Tank Mount
- Install the Tank
- Erect the Roof and Walls of the Building Expansion

Task 3: Diaphragm Wall Installation

- Build Excavation Platform
- Excavate Trench / Pour Slurry
- Install Reinforcement into Slurry
- Pour Concrete and Collect the Displaced Slurry
- Install the Intrusion Water Management System

Task 4: Carbon Dioxide Treatment System Installation

- Assemble Carbon Dioxide Diffusion Segments (Silicone and HDPE)

Task 5: Treatment Corridor Completion

- Install Dewatering System
- Excavate Soil From Between Diaphragm Walls
- Establish Soil Stockpile Area, Begin Sieving Soil for Groundwater Barrier Wall
- Install Carbon Dioxide Diffusion Assemblies
- Install Gravel Fill
- Install Carbon Dioxide Delivery System

Task 6: French Drain Installation

- Excavate Trench / Pour Slurry
- Displace Slurry / Install Gravel

Task 7: Streambed Erosion Control

- Install Silt Curtain in Sullivan Creek
- Install Biostructural Treated Water Discharge Structures

Task 8: Groundwater Barrier Walls

- Excavate Wall Segments
- Add Bentonite-Soil Slurry Mixture
- Install Clay Cap Above the Slurry
- Grade Slurry Wall Excavation

Task 9: Wetlands Mitigation Measures

- Restore Wetlands on 1:1 Basis

Task 10: System Start up

- Install Electrical Components
- Start Up Carbon Dioxide Treatment System

Task 11: Site Restoration

- Establish Final Grade
- Re-vegetate Disturbed Areas

Task 12: Institutional Controls

- Place Fencing and Signage
- Install Storm water BMP's
- Continue Compliance Monitoring

4.3 Construction Quality Management

Prior to mobilizing for construction, Lehigh and the Site contractors will prepare a Construction Quality Management (CQM) Plan. The CQM Plan will include provisions for health and safety, materials management, erosion and storm water

control, traffic control, pre-survey controls, in-place protections, and documentation procedures.

Safety is an integral component of Lehigh's operations. The Site contractors will be selected, at least in part, based on their safety record. Each contractor will be responsible for the health and safety of their employees. The work will be performed in accordance with all applicable State, County, and local codes and ordinances.

Progress of the construction activities will be reported by the contractor. These data will be included, at least in part, in the Cleanup Action Completion Report to be submitted following construction.